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BRANCHING OUT: SYNERGIES IN FOREST ASSESSMENTS AND CLIMATE TRANSPARENCY REPORTING

In collaboration with



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BRANCHING OUT:

SYNERGIES IN FOREST ASSESSMENTS AND CLIMATE TRANSPARENCY REPORTING

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Rome, 2025

Required citation:

Stahl, B. & Slivinska, V. 2025. *Branching out: Synergies in forest assessments and climate transparency reporting*. Rome, FAO. <https://doi.org/10.4060/cd7612en>

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ISBN 978-92-5-140301-3

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Acknowledgements



This publication was prepared by Bastian Stahl (FAO) and Valentyna Slivinska under the coordination of Anssi Pekkarinen (FAO) and Rocío Dánica Cóndor-Golec (FAO) and reviewed by Amy Duchelle (FAO), Serena Fortuna (FAO), Maria Nuutinen (FAO), Antoine Libert (FAO), Jose Carlos Fernandez Ugalde (FAO), Lucio Santons (FAO), Dirk Nemitz (UNFCCC), Luca Birigazzi (UNFCCC) and Keiichi Igarashi (UNFCCC).

This publication was developed under the project “Building global capacity to increase transparency in the forest sector (CBIT-Forest)” funded by the Capacity-building Initiative for Transparency (CBIT) trust fund of the Global Environment Facility (GEF). FAO wishes to acknowledge and thank the UNFCCC Secretariat for its contribution to this publication.

Abbreviations

BTR	Biennial Transparency Report
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CRTs	common reporting tables
CTF	common tabular format
ETF	Enhanced Transparency Framework
FAO	Food and Agriculture Organization of the United Nations
FMCP	facilitative, multilateral consideration of progress
FRA	Global Forest Resources Assessment
FREL	forest reference emission level
FRL	forest reference level
FTC	financial, technology transfer, and capacity building
GGA	Global Goal on Adaptation
GHG	greenhouse gas
HWPs	harvested wood products
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LULUCF	land use, land-use change and forestry
MPGs	Modalities, procedures and guidelines for the transparency framework for action and support
MRV	measurement, reporting and verification
NDC	nationally determined contribution
NID	national inventory document
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SDGs	Sustainable Development Goals
SFM	sustainable forest management
SIDS	small island developing state
TER	technical expert review
TERT	technical expert review team
UNFCCC	United Nations Framework Convention on Climate Change

Executive summary



Forests are dynamic repositories of carbon, biodiversity and ecological resilience, offering numerous additional ecosystem services beyond their commonly known advantages. The land use, land-use change and forestry sector plays a dual role in global emissions, acting as both a source and a sink for greenhouse gases.

The Enhanced Transparency Framework of the Paris Agreement establishes standardized reporting requirements for all countries, ensuring comprehensive, consistent and comparable reporting. The Biennial Transparency Reports (BTRs) emerged out of this framework as a new approach to international climate reporting to track the progress of national determined contributions.

The Global Forest Resources Assessment (FRA) of the Food and Agriculture Organization of the United Nations (FAO) is the global reference of data on forest resources of 236 countries and territories. Since 2005, the FRA reporting process has built on reports prepared by officially nominated national correspondents. FRA data are used to support LULUCF reporting under the United Nations Framework Convention on Climate Change (UNFCCC). In this context, countries could utilize the same data to report to other processes – such as Reducing Emissions from Deforestation and Forest Degradation.

The FRA and BTR reporting contains an extensive set of complementary indicators and metrics that show significant topical overlap, despite variations in terminology and methodological approaches.

This study explores how synergies between FAO's FRA and the UNFCCC's BTRs can streamline reporting processes by enhancing data quality, reducing national reporting burden and strengthening evidence-based climate action. Thereby, the study seeks to determine synergies, critical areas of collaborations, methodological gaps and useful linkages for enhanced forest-climate data management and reporting.

Information from national forest monitoring systems is the main source of information for FRA and is essential for BTR greenhouse gases inventory reporting. Aligning the timing of data compilation, review, and verification processes can enhance the traceability and consistency of reported information. Enhancing synergies among focal points internally and externally, as well as cooperation between the two networks, requires establishing communication channels, regular joint meetings and consistent coordination.

Such technical recommendations for the incorporation of FRA and BTR can facilitate future Global Stocktake processes and the Global Goal on Adaptation through internally and externally consistent forest-related information reported by countries.

Key messages

- ▶ The FAO FRA and UNFCCC BTR reporting contain an extensive set of complementary indicators and metrics that show significant topical overlap, despite variations in terminology and methodological approaches.
- ▶ Data from the FRA can significantly support reporting in the LULUCF sector by providing detailed information on forest-related data for calculating emissions and removals resulting from human-induced activities on forest land.
- ▶ Enhancing synergies among focal points internally and externally, as well as cooperation between the two networks, requires establishing communication channels, regular joint meetings and consistent coordination.
- ▶ Integrated national data management could support streamlined international reporting by facilitating data organization, aggregation, report submission, review, validation, analysis, and dissemination.

1. Introduction



Covering slightly over 30 percent of the Earth's land area, forests are dynamic repositories of carbon, biodiversity and ecological resilience (FAO, 2025). Forests offer numerous additional ecosystem services beyond their commonly known advantages. From freshwater regulation and wood supply to soil conservation, forests play a complex role in sustaining ecological balance and supporting human livelihoods (Brockerhoff *et al.*, 2017).

The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) highlights that the agriculture, forestry and other land use (managed land) sector accounted for approximately 13–21 percent of global anthropogenic greenhouse gas (GHG) emissions during the period 2010 to 2019 (IPCC, 2022).

The land use, land-use change and forestry (LULUCF) sector plays a dual role in global emissions, acting as both a source and a sink for GHGs. According to the IPCC's Sixth Assessment Report, the LULUCF sector contributes significantly to global emissions. In particular, deforestation is seen as a major driver, accounting for about 45 percent of total agriculture, forestry and other land-use emissions (IPCC, 2022). The IPCC concludes with high confidence that directly and significantly cutting emissions is the most effective way to address climate change. Using forests as natural carbon sinks can support this goal. Reducing deforestation and forest degradation also offers major potential for climate mitigation.

Adopted in 2015, the Paris Agreement aims at “holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above preindustrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”, while encouraging countries towards climate action and sustainable development. Under the agreement, countries are encouraged to adopt sustainable land-management practices that support climate change mitigation and adaptation strategies (UNFCCC, 2016).

Forests play a crucial role in the climate goals of the Paris Agreement because of their potential in mitigation and adaptation. Measuring the implementation of the Paris Agreement relies on accurate, consistent and reliable monitoring of its progress in participating countries. Thereby, data serve as the basis for setting realistic targets and adjusting strategies as needed (Harris *et al.*, 2021).

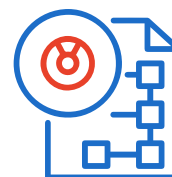
Global forest-related evaluations, such as the Global Forest Resources Assessment (FRA) of the Food and Agriculture Organization of the United Nations (FAO), provide critical data for climate policy frameworks like the Paris Agreement. The Biennial Transparency Reports (BTRs) of the United Nations Framework Convention on Climate Change (UNFCCC) under the Paris Agreement serve as a standardized mechanism for countries within the Global Stocktake¹ to report their GHG emissions and to track progress towards their climate commitments made in nationally determined contributions (NDCs) under the treaty (Falduto *et al.*, 2021; Bodansky, 2016).

FAO's FRA provides the most comprehensive data on global forest resources as well as their condition, management and uses. Since forests play an important role in national and global carbon accounting as well as climate mitigation and adaptation strategies, BTRs are intrinsically linked to FRA. With the wide range of FRA information, the Paris Agreement reporting could build more thoroughly on corresponding FRA data to monitor and report progress towards climate goals as well as to benchmark forest-related emissions, removals and adaptation efforts described in BTRs.

This study explores synergies between FAO's FRA and the UNFCCC's BTRs and how to streamline reporting processes by enhancing data quality, reducing national reporting burden and strengthening evidence-based climate action.

¹ The Global Stocktake under the Paris Agreement is a process conducted every five years to assess the world's collective progress towards achieving the agreement's long-term goals, including limiting global temperature rise, enhancing climate resilience and aligning financial flows with climate objectives. Its findings are intended to inform countries' future climate actions and strengthen international cooperation by identifying gaps and opportunities for more ambitious climate efforts.

Objectives, scope and methodology



The analysis at hand is based on a comprehensive literature review drawn from peer-reviewed scientific publications, official UNFCCC and FAO documentation, and international climate reports.

The study includes examining reporting requirements and methodologies applied by both processes, focusing on:

- ▷ analysing and describing data collection methods and verification processes;
- ▷ assessing the alignment of forest-related criteria and indicators used by FRA with the data reported in BTRs;
- ▷ evaluating the advantages and limitations of both processes; and
- ▷ investigating how synergies in reporting could support national policies (e.g. national GHG inventories) and global processes (e.g. the Global Stocktake) to increase climate action through sustainable forest management (SFM).

In summation, the study seeks to determine synergies, critical areas of collaborations, methodological gaps and useful linkages for enhanced forest-climate data management and reporting.





2. Global forest resources assessment and enhanced transparency framework

FAO Global forest resources assessment

Background

The FRA is the most comprehensive international reporting process on the status and trends of global forest resources as well as their management and use. This thorough reporting mechanism supports evidence-based policies and international frameworks like the Sustainable Development Goals (SDGs) and climate agreements.

The Constitution of FAO of 1945 states that “the Organization shall collect, analyse, interpret and disseminate information relating to nutrition, food and agriculture”. In this constitution, the term agriculture and its derivatives include fisheries, marine products, forestry and primary forestry products.

During the initial FAO Conference held in the autumn of 1945, attendees highlighted the importance of having current data on global forest resources. Subsequently, in May 1946, the Forestry and Forest Products Division was established and initiated FAO's inaugural global forest assessment. By the sixth FAO Conference in 1951, it was recommended that the organization should establish an ongoing capacity for regularly reporting on the condition of forests worldwide.

Conducted every 5 to 10 years since then, FRA continues to provide a systematic approach to understanding global forest resources for 236 countries and territories. Since 2005, the FRA reporting process has built on reports prepared by officially nominated FRA national correspondents.

FAO's FRA is supported by the FRA Advisory Group, which makes recommendations on strategic matters to make future forest resources assessments increasingly user oriented, demand driven and more closely linked to other international processes. The Advisory Group consists of forestry experts and representatives from key international organizations, ensuring that the reporting methodology aligns with their needs and expectations (FAO, 2025).

Over the last three decades, FRA has also held expert consultations to provide technical support to develop further methodologies and resolve technical challenges of the global assessments. These gatherings bring together subject matter experts, statisticians and FRA stakeholders to help keep the reporting relevant and ensure its consistency and accuracy among countries and institutions while meeting the needs of various international and national processes.

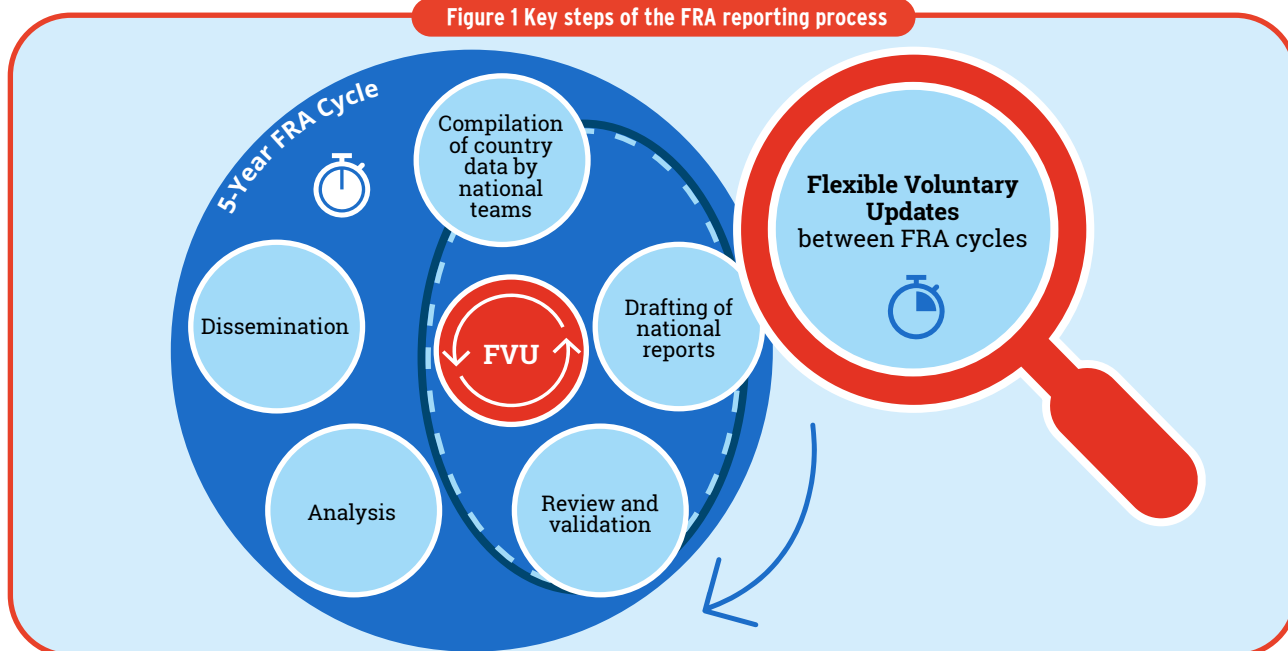
To enhance timeliness, the FRA platform now enables flexible voluntary updates, allowing countries to update their data outside the regular reporting cycles whenever new or improved information becomes available.

Reporting process

The FRA uses a standardized reporting system to apply an efficient and collaborative approach to data collection, review and validation. Data collection is facilitated through a network of more than 190 national correspondents who serve as the primary liaison between participating countries and the FRA Secretariat during the process.

National correspondents coordinate a team of national experts to compile data from different national sources for their country reports. The FRA Secretariat supports national correspondents throughout the process of report preparation, which includes the submission of data by the national correspondent, technical reviews by FAO focal points and validation by the national head of forestry before the final publication of the report. The key steps of the FRA reporting process are summarized in Figure 1.

Figure 1 Key steps of the FRA reporting process



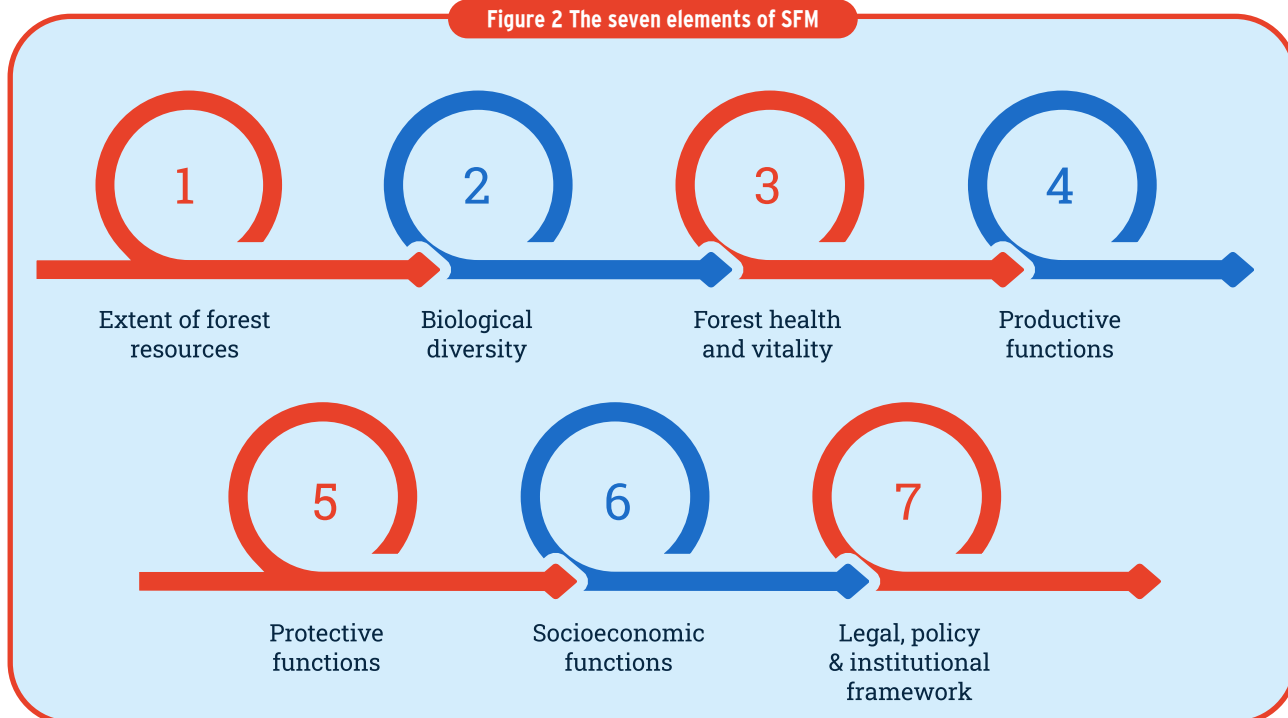
National correspondents are further supported by comprehensive workshops and training for report preparation. Supporting documents and tools are provided to facilitate standardized reporting. This includes information on the [country reporting process and voluntary updates](#), [guidelines and specifications](#), and [terms and definitions](#) to be used.

Recent enhancements to the FRA reporting process include the development of the FRA online platform for data submission, review, visualization and dissemination. Additionally, the platform offers modules to compare and use different remote sensing datasets, as well as carbon and biomass calculators to prepare country reports.

Scope of global forest resources assessment

Via a reporting structure with over 50 variables, the FRA covers seven thematic elements of SFM: extent of forest resources; biological diversity; forest health and vitality; productive functions; protective functions; socioeconomic functions; and the legal, policy and institutional framework (Figure 2).

Figure 2 The seven elements of SFM



Thereby, the FRA systematically collects information of variables such as forest area and its changes, biodiversity, forest protection and disturbances, management plans and carbon storage. This integrated approach ensures that all key aspects of SFM are assessed to enable tracking progress towards SFM at a global level.

FAO's FRA is vital to SDG monitoring as a primary data collector for forest-related indicators for two of the 17 SDGs at the core of the United Nations 2030 Agenda for Sustainable Development. The FRA ensures the delivery of accurate, comparable data that support evidence-based decision-making and the global tracking of countries' progress towards achieving the 2030 Agenda.

Furthermore, the FRA serves as a key source of data for the global core set of forest-related indicators. This framework encompasses 21 distinct indicators designed to evaluate SFM implementation and the achievement of the United Nations Strategic Plan for Forests 2030 and its related global forest goals and targets.

The global core set of forest-related indicators was developed through a collaborative process involving multiple stakeholders and expert consultations, adhering to specific selection criteria that ensure their relevance, measurability and cost-effectiveness.

Use of global forest resources assessment data

The FRA main report is the primary comprehensive documentation of the latest FRA cycle. It provides detailed analyses, holistic explanations and evaluations of trends for researchers in science, policymakers and forest management professionals.

FRA data serve as a critical basis for a wide range of national and global applications. This alignment reduces the reporting burden on countries and enhances data consistency while ensuring that collected data serve multiple purposes in international policy. The FRA aligns to the extent possible with multiple international reporting requirements, including those of the SDGs, the UNFCCC, the Convention on Biological Diversity, and the United Nations Strategic Plan for Forests 2017–2030.

FRA supports other assessments conducted by entities like the IPCC, providing comprehensive analyses and projections of environmental and climatic shifts. In particular, the IPCC incorporates FRA data in analyses in the LULUCF sector to develop global baselines and trends on forest cover, carbon stocks and emission estimations (Nesha *et al.*, 2021).

FRA data are used to support LULUCF reporting under UNFCCC. In this context, countries could utilize the same data with adjustments to account for definition discrepancies to report to other processes – such as Reducing Emissions from Deforestation and Forest Degradation (REDD+).

Likewise, FRA data are utilized to evaluate the progress of the SDGs. In particular, FAO is the custodian agency for SDG Indicators 15.1.1 “Forest area as proportion of total land area” and 15.2.1 “Progress towards sustainable forest management”. FRA collects the necessary data for these indicators and drafts the related reports for FAO's submissions to the United Nations Statistical Division.

[Global biodiversity outlooks and assessments](#), as conducted by the [Convention on Biological Diversity](#) and the [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#), build upon FRA data and information. Information on forest characteristics, protected areas and forest management practices are among variables used to evaluate ecosystem health and biodiversity status.

Furthermore, regional organizations use FRA data for their needs. For example, [FOREST EUROPE](#) uses FRA data as part of its [assessment of the status and trends in forests and forestry in the pan-European region](#) while developing regional forest strategies.

Dissemination of global forest resources assessment data

The FRA main report is complemented by the FRA interactive key findings and FRA country reports with essential information in a concise format. In recent cycles, FRA also produced innovative interactive web stories to combine narrated elements with the dissemination of key messages and dynamic data visualizations for non-technical audiences.

The [FRA online platform](#) is the main digital database for information on forest resources. The platform provides users with direct access to country data, data visualization, and downloadable datasets. The platform's functionality and user interface support both basic and advanced data query functions.

In addition to the main FRA platform, data, or parts of them, are likewise distributed through online platforms and databases of other organizations, including the [World Bank's Development Data Platform](#), the [United Nations Statistics Division's database](#), [UN data](#) and [INForest](#), the data and knowledge platform for forests in the region of the United Nations Economic Commission for Europe. An overview of the dissemination of FRA data is provided in Figure 3 below.

Transparency

The FRA process has undergone significant developments to contribute to forest data reporting and management with transparency and accessibility, reflecting commitment to open-access principles and continuous improvements in forest reporting.

The transparency of the FRA process is strengthened through several integral features. The FRA process uses a detailed metadata system, where each country dataset includes descriptions, documents, issuance dates, legislation, and thematic domains to ensure data traceability and clarity.

As a contribution to transparent and accessible global forest data, the FRA online platform has evolved through several generations. Recent platform updates have introduced advanced data visualization tools and improved logic-check formulas for national correspondents and collaborators, enabling more efficient data submission and review workflows. A document repository ensures that relevant supporting documents of country reports are publicly available, promoting open access to both current and historical data.



Biennial transparency reports in the enhanced transparency framework under the Paris Agreement

Background

The Enhanced Transparency Framework (ETF) of the Paris Agreement establishes standardized reporting requirements for all countries, with some flexibility for those developing countries, that need it in light of their capacities, Least Developed Countries (LDCs) and small island developing states (SIDS). The framework ensures the comprehensive, consistent and comparable reporting by countries to enable more transparent tracking of global progress in climate action.

The Paris Agreement established NDCs as individual commitments at the country level to outline country's specific efforts and actions to reduce its GHG emissions to contribute to long-term goals.

The second set of NDC contributions covers approximately 70 percent of global emissions (UNEP, 2024). Notably, approximately 60 percent of second round of NDCs include forest-specific mitigation strategies, focusing on ecosystem restoration, afforestation and reforestation (UNFCCC, Secretariat 2024).

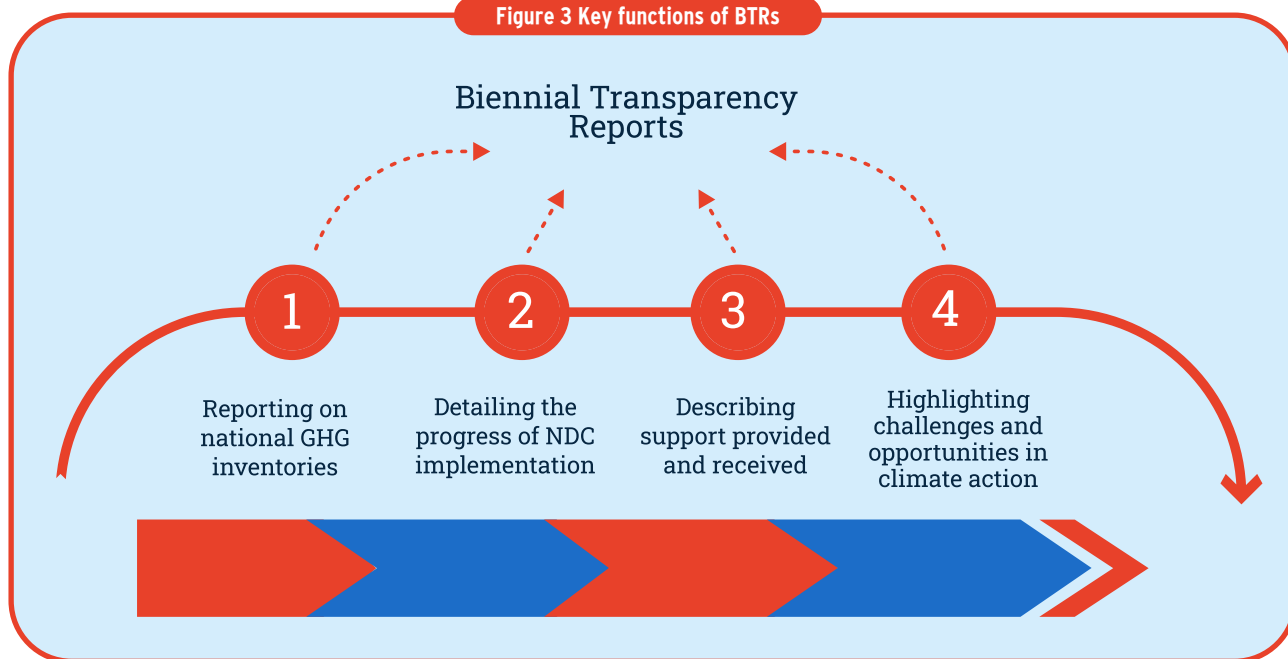
In addition, the Paris Agreement addresses forests directly in Article 5, which encourages countries to take action and progress on their REDD+ strategies and action plans, including conservation, sustainable use and enhancement of carbon stocks in forests. Furthermore, according to Article 5.2 of the Paris Agreement, countries "are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries; and alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches." This article provides methodological and financing guidance for countries seeking to receive results-based payments, both market and non-market, for their REDD+ activities.

Additionally, the Paris Agreement established the Global Goal on Adaptation (GGA) under Article 7, which aims to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change. A comprehensive set of potential indicators to monitor progress towards the GGA, including related to forests and ecosystems, has been developed through the UNFCCC UAE-Belém Work Programme (the decision is expected at the COP30). The GGA is being advanced through voluntary adaptation actions detailed in NDCs and national adaptation plans.

The BTRs emerged out of the Paris Agreement's ETF under Article 13 as a new approach to international climate reporting to track the progress of NDCs. BTRs are designed to enhance the clarity, transparency and accountability of national climate actions, particularly in tracking the implementation of NDCs and are done every two years. The key areas reported by countries in BTRs are summarized in Figure 3.



Figure 3 Key functions of BTRs



The nature of the ETF including its expert review process encourages the continuous enhancement of national climate action reporting. By analysing the gaps and achievements reported in previous BTRs, countries can refine their NDCs to ensure the reflection of both ambitious and achievable targets for both mitigation and adaptation.

For the Parties to the Paris Agreement, the BTRs superseded the Biennial Update Report (BUR) and the Biennial Report (BR) for the UNFCCC.

Reporting process



Countries that are Parties to the Paris Agreement required submit their BTR with the following contents:

- I. national inventory report of anthropogenic emissions by sources and removals by sinks of GHGs, accompanied by the common reporting tables (CRT).
- II. information necessary to track progress made in implementing and achieving the NDC, accompanied by the common tabular format (CTF).
- III. information related to climate change impacts and adaptation (encouragement).
- IV. information on financial, technology transfer, and capacity-building (FTC) support provided and mobilized, accompanied by the CTF, which is required to be provided by developed countries and encouraged to be provided by others.
- V. information on FTC support needed and received, accompanied by the CTF, which is encouraged to be reported by developing countries.

Forest developing countries aiming to access REDD+ results-based payments shall report emission reduction results in a technical annex to the BTR, as referred to in Decision 18/ CMA.1, paragraph 14.

Least Developed Countries (LDCs) and Small Island Developing States (SIDSs) may determine their own BTR submission dates and reporting frequency. This flexibility acknowledges the distinct challenges these countries encounter in monitoring and reporting climate actions, granting them extended timelines and less rigorous reporting requirements.

The BTR submission is guided by the Modalities, procedures, and guidelines for the transparency framework for action and support (MPGs)² referred to in Article 13 of the Paris Agreement, contained in decisions 18/ CMA.1 and its annex, as well as 5/CMA.3. The MPGs provide the BTR submission timeline; flexibility for those developing countries, that need it in light of their capacities, LDCs, and SIDS, requirements for BTR reporting; and the technical expert review (TER) process description.

Developing countries that need flexibility in consideration of their capacities to prepare, report, and submit the information in the BTR with the scope, frequency and level of detail required by MPGs can apply the flexibility provision granted under the ETF. Furthermore, they shall explain why they are using a flexibility provision and provide a timeline for addressing the capacity constraints that led to its application.

Each BTR submission is subject to a TER organized by the UNFCCC Secretariat. The TER's scope focuses on a review of GHG inventory, information to track progress in implementing and achieving the NDC, support provided to developing countries, climate change impacts and adaptation on an optional basis. In addition, the scope of TER's includes the identification of capacity building needs as well as areas of improvements. The TER process plays a critical role in ensuring the credibility and accuracy of the information reported by highlighting areas for improvement and providing recommendations or encouragements for enhancing future submissions with emphasis on capacity-building needs (if any). Once the TER report is published, the facilitative, multilateral consideration of progress (FMCP) is launched for countries to exchange knowledge of climate action best practices (Figure 4).

In this context, the BTR, where Parties report their climate action progress every two years, the TER (which reviews the accuracy and completeness of these reports), and the FMCP (a platform for dialogue and peer learning on implementation progress) are key components under the ETF. The technical analysis of the REDD+ technical annex to the BTR is organized concurrently with the TER by the UNFCCC secretariat.

As a prior required step to the REDD+ technical annex, countries submit forest reference emission level/ forest reference level (FREL/FRL), which are also technically assessed through a process led by the UNFCCC Secretariat.

Figure 4 Key steps in the BTR



² Decision 18/CMA.1

Elements (chapters) of biennial transparency reports

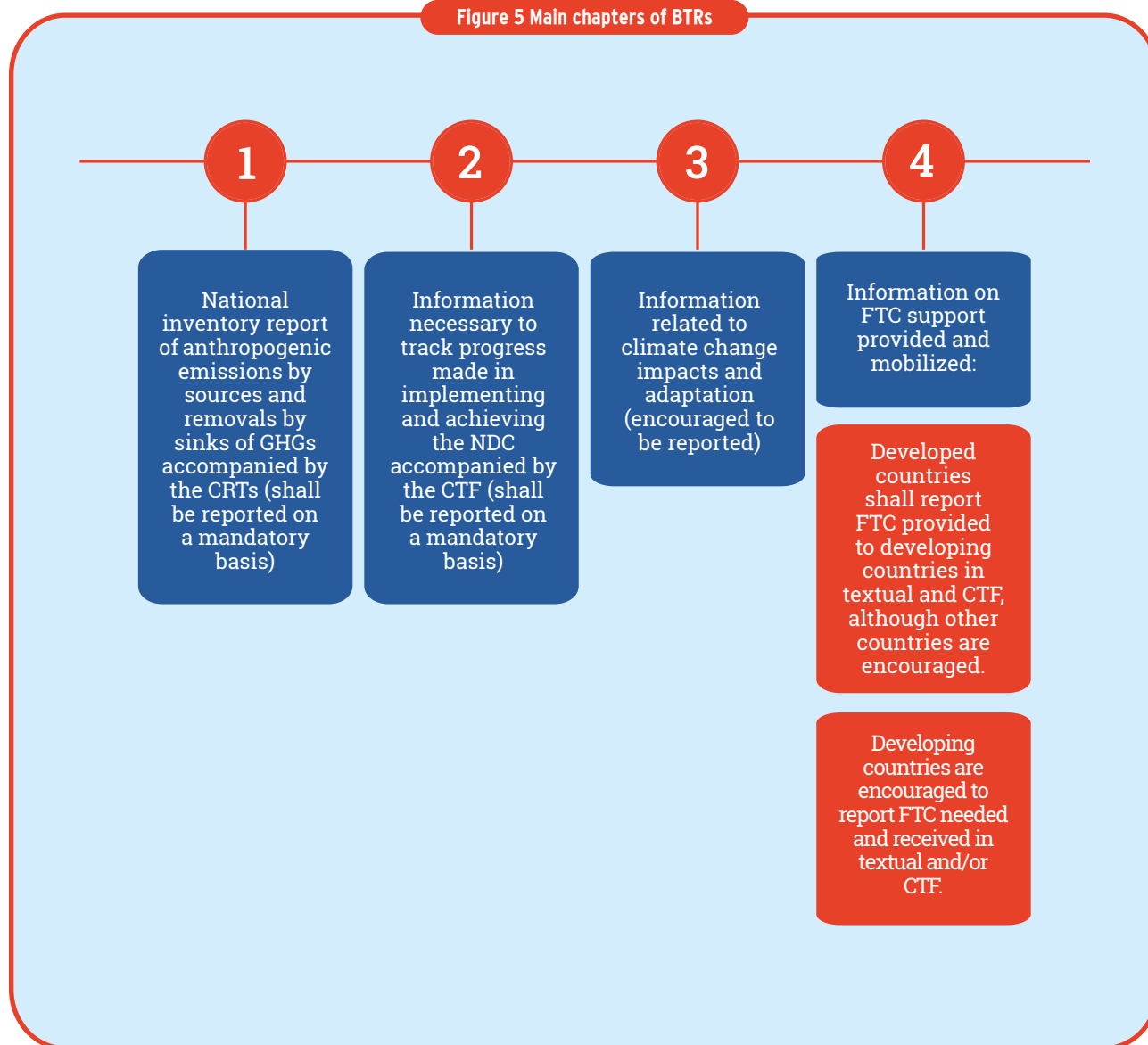
The MPGs promote guiding principles of transparency, accuracy, completeness, consistency and comparability while providing the reporting requirements for BTRs and its main chapters (Figure 5).

National GHG inventory and LULUCF sector reporting

A national GHG emission and removal inventory is a core component of the BTR under the ETF and shall be reported by all Parties following the requirements provided in the MPGs, which require the use of the 2006 IPCC Guidelines (IPCC, 2006) and encourage the use of the Wetlands Supplement (IPCC, 2014). Countries may also apply the 2019 Refinement to the 2006 IPCC Guidelines (IPCC, 2019).

The GHG inventory shall be performed for the energy, industrial processes and product use, agriculture, LULUCF, and waste sectors. To align the GHG emission and removal estimations with the ETF reporting principles, countries shall include relevant information on the activity data and emission factors used (preferably country specific) and their sources, as well as the applied methods, approaches, and assumptions. The outline for the national inventory document (NID), which Parties are encouraged to follow, can be found in Annex V to decision 5/CMA.3.

Figure 5 Main chapters of BTRs



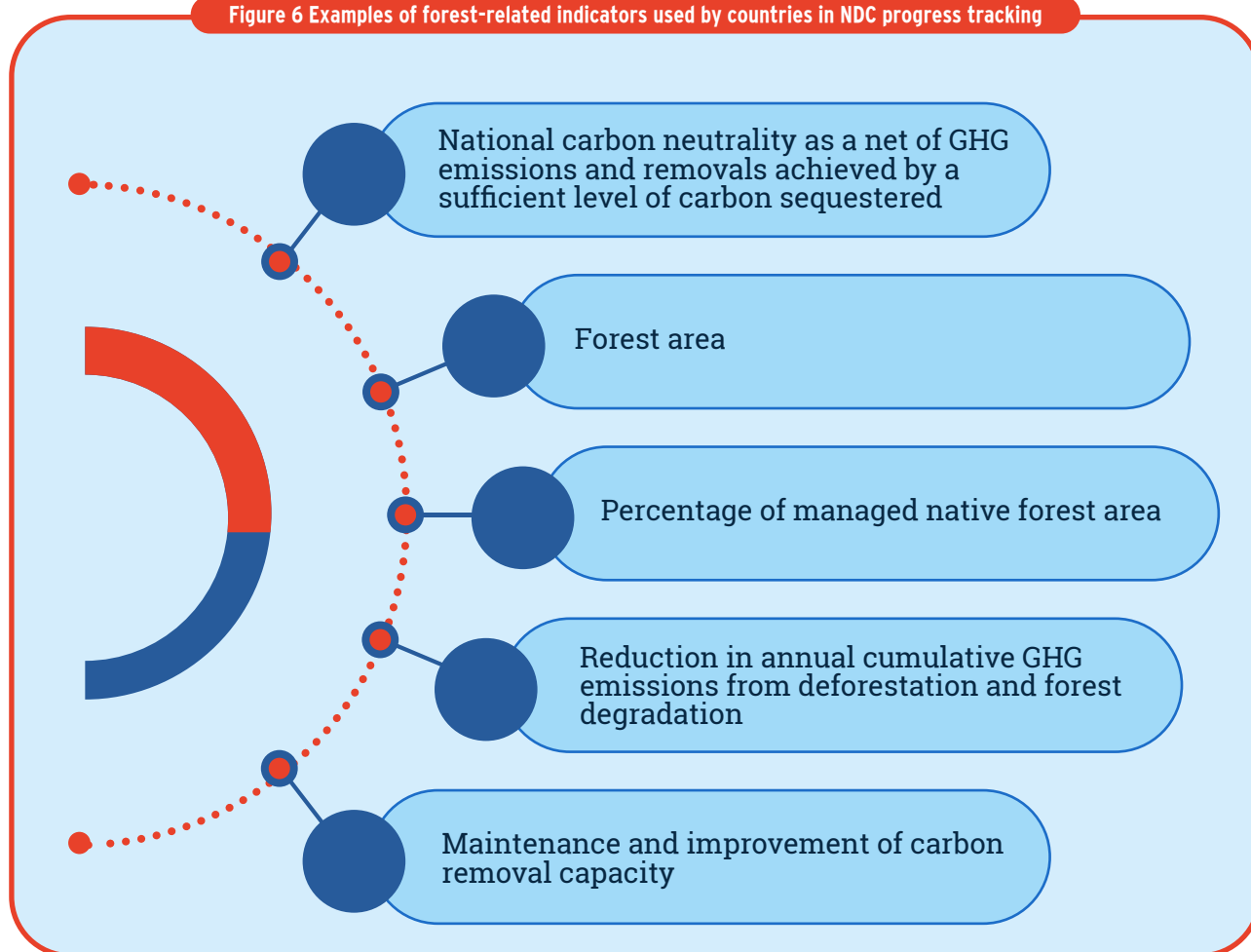
The GHG inventory in the LULUCF sector should estimate carbon stock changes in carbon pools (biomass, dead organic matter and soils) of the relevant land-use categories resulting from anthropogenic activities, management practices and natural disturbances at the most disaggregated level. For the initial step, countries should prepare land-use representation following one of the three approaches provided in the 2006 IPCC Guidelines (Volume 4) and disaggregate the national area by six IPCC land-use categories (forestland, cropland, grassland, wetland, settlement and other land). Each land-use category is subdivided by remaining land types (e.g. forestland, remaining forest land) and land converted to land-use category (e.g. cropland converted to forest land), and can be further disaggregated to reflect national circumstances. Countries are encouraged to stratify land-use categories by climate or ecological zone, soil and vegetation type to mirror specific natural conditions. Carbon stock change in different carbon pools of land-use categories can be estimated following the methods provided in the 2006 IPCC Guidelines, such as gain-loss or carbon stock difference.

Progress made towards NDCs: Forest-related metrics

To report progress made towards NDCs, countries shall provide information necessary to track progress made in implementing and achieving nationally determined contributions in the BTR. The outline for this chapter, which Parties are encouraged to follow, is provided in Annex IV to decision 5/CMA.3 and annex to decision 18/CMA.1. Among the required reporting information – like national circumstances and institutional arrangements, NDC description, and projections of GHG emissions and removals, climate change impacts as well as national adaptation policies and strategies – countries shall report information needed to track the progress (e.g. indicators, definitions and approaches to LULUCF).

As countries may choose different indicators for tracking progress according to their national circumstances and the relevant representativeness of data and information, some of the options used by countries include forestry-related indicators, as shown in Figure 6.

Figure 6 Examples of forest-related indicators used by countries in NDC progress tracking



Countries are free to choose accounting approaches for the LULUCF contribution to their NDCs. The following estimation and accounting approaches can be used by countries (UNFCCC Secretariat, 2022):

- ▷ land-based vs activity-based:
 - A *land-based approach* focuses on carbon stock change in relevant carbon pool calculations from the nationally managed land classified according to the 2006 IPCC Guidelines. This approach accounts for GHG emissions and removals resulting from changes in management practices in the land-use categories and/or land-use changes.
 - An *activity-based approach* focuses on GHG emissions from the specific carbon stock change activities occurring in defined areas, including REDD+ activities reporting. To avoid double counting, activities need to be considered in hierarchical order.
- ▷ harvested wood products (HWP):
 - To account for emissions and removals from the HWP that cover wood products harvested, produced and consumed domestically or exported overseas, the 2006 IPCC Guidelines provide four approaches: stock-change, production, atmospheric flow and simple decay.
- ▷ natural disturbances:
 - “Parties that decide to address emissions and subsequent removals from natural disturbances on managed lands shall provide detailed information on the approach used and how it is consistent with relevant IPCC guidance, as appropriate, or indicate the relevant section of the national GHG inventory report containing that information”
- ▷ effects of age-class structure:
 - “Parties that address the effects of age-class structure in forests provide detailed information on the approach used and how this is consistent with relevant IPCC guidance, as appropriate.”

Climate change impacts and adaptation:

- ▷ forest-based mitigation and adaptation actions
 - The impacts of climate change, like more frequent and intense sudden events such as wildfires, droughts and pest outbreaks, as well as slow-onset events such as sea level rise, salinization and desertification, are becoming more evident in land and forest management, threatening carbon storage and emissions in the LULUCF sector. To ensure the health and vitality of forests, countries are incorporating adaptation strategies that support resilience, such as updating forest management guidelines, promoting integrated fire management, enhancing and maintaining biodiversity at all levels (genetic, species, ecotypes), restoring natural habitats and evaluating risks. Integrating adaptation into land-use policies and practices ensures that forests and other ecosystems continue to contribute to climate goals. Tracking these efforts within national reporting helps adaptive management, learning and maintaining the effectiveness of those climate actions.

To report information related to climate change impacts and adaptation, countries are encouraged to describe the impacts, risk, vulnerabilities, adaptation priorities, adaptation barriers, strategies, policies, plans and goals to the fullest extent possible following the MPGs.



As climate change impacts have different patterns throughout the world, countries are facing them with various adaptation strategies that target forests often through approaches, such as:

- ▶ ecosystem-based adaptation;
- ▶ nature-based solutions;
- ▶ ecosystem-based disaster risk reduction;
- ▶ community-based forest management;
- ▶ afforestation, reforestation, and forest and landscape restoration on degraded lands to promote carbon removals and biodiversity, contributing to local climate resilience by improving soil fertility, reducing erosion and increasing water retention;
- ▶ biodiversity evaluation to develop conservation strategies, [such as national biodiversity strategies and action plans](#) for the conservation and sustainable use of biological diversity; specific forest types' conservation strategies targeting forest and landscape protection; strategies for forest genetic diversification, such as forest seed banks to maintain genetic diversity and enhance tree species variety.
- ▶ integrated fire management that includes fire prevention, preparedness, suppression and recovery measures; and
- ▶ financial, technology transfer and capacity-building support including, for example in comprehensive forest monitoring mechanisms to track forest health and changes.

FTC support is crucial for countries to implement mitigation and adaptation actions and achieve their NDC targets. Developed countries shall report on FTC support provided and mobilized, while developing countries are encouraged to do so. The information should be provided following the MPGs. This chapter of BTR includes information on multilateral and regional channels, among others; finance mobilized through public interventions; and support provided for technology development and transfer. An overview of the forest-related FTC support reported by countries in their first BTRs is provided in Annex II.

Technical annexes for REDD+

The technical annexes for REDD+ results in the BTRs provide detailed information on procedures for forest measurement, reporting and verification (MRV) performed by a developing country seeking support, including through results-based payments, for their progress in reducing forest-related emissions. This information shall demonstrate the results of the REDD+ activity implementation in tCO₂ eq (tonne of carbon dioxide equivalent), compared to the assessed forest reference emission level/forest reference level (FREL/FRL), including the description of implemented activities provided by the decision 1/CP.16, paragraph 70, in line with national capabilities and circumstances.

The defined activities are:

- ▶ reducing emissions from deforestation
- ▶ reducing emissions from forest degradation
- ▶ conservation of forest carbon stocks
- ▶ sustainable management of forest
- ▶ enhancement of forest carbon stocks



Reference levels (FREL/FRL) set up in tCO₂ eq. for a reference period serve as a benchmark for emissions and removals from a results period comparison. Reference levels should be transparent, consider historic data and be adjustable to national circumstances, while targeting environmental integrity and preventing perverse incentives. FREL/FRL should be updated periodically, as appropriate, to reflect new knowledge, trends and changes of scope and methodologies.

Methodological approaches of assessing REDD+ implementation follow the IPCC 2006 Guidelines for estimating anthropogenic forest-related GHG emissions, forest carbon stocks and forest area changes. Countries report on the carbon estimation methods applied, including remote sensing technologies and ground-based data collection techniques to estimate emissions reductions.

Developing countries seeking for support for REDD+ activities, including financial, technical and technological, must develop the following elements listed in decision 1/CP.16, paragraph 71, in accordance with national circumstances and respective capabilities:



- ▷ A national strategy or action plan;
- ▷ A national FREL/FRL;
- ▷ A robust and transparent forest monitoring system;
- ▷ A system for providing information on safeguards, provided in Annex I of the same decision, for instance, the actions complementing the objectives of national forest programmes, transparent and effective national forest governance structures, respect for the knowledge and rights of Indigenous Peoples and members of local communities, etc.

The technical annexes, according to Annex of the decision 14/CP.19, shall contain the following information:



- ▷ Summary information from the final report containing each corresponding assessed FREL and/or FRL:
 - the assessed FREL and/or FRL, expressed in t CO₂ eq.
 - the activity or activities referred to in decision 1/CP.16, paragraph 70, included in the FREL and/or FRL
 - the territorial forest area covered
 - the date of the FREL and/or FRL submission and the date of the final technical assessment report
 - the period (in years) of the assessed FREL and/or FRL
- ▷ results in t CO₂ eq per year, consistent with the assessed FREL and/or FRL
- ▷ a demonstration that the methodologies used to produce the results are consistent with those used to establish the assessed FREL and/or FRL
- ▷ a description of national forest monitoring systems and the institutional roles and responsibilities for MRV of the results
- ▷ the necessary information that allows for the reconstruction of the results
- ▷ a description of how the elements contained in decision 4/CP.15, paragraph 1 (c–d), have been considered

The annexes ensure that countries transparently communicate the specific actions they have taken and the methodologies used to estimate emissions reductions, as part of the results achieved.

Dissemination of data and information

The dissemination of data and information from the BTRs aims to enhance international transparency and enable the global community to assess progress on global climate goals and actions taken. BTR submissions are shared through the [UNFCCC website](#) and are publicly available to stakeholders, experts and the public.

The key aspects of the data dissemination for the BTR process include:

▶ **Submission of BTR:**

Countries are required to submit their BTRs every two years (except LDCs and SIDSs, which are granted discretion on the submission timing). These reports are accessible to the public and provide a means for tracking the progress of individual countries towards achieving their NDCs. By sharing data through the platform, countries contribute to a global pool of knowledge that enhances transparency in climate action.

▶ **TER reports:**

As part of the ETF, the BTRs are subject to a TER process organized by the UNFCCC Secretariat. If the BTR includes a technical annex on REDD+, concurrently to the TER, two LULUCF experts, conduct a technical analysis of the technical annex. The TER team (TERT) assesses the consistency of information submitted in:

- BTRs with MPGs (decision 18/CMA.1) and the 2006 IPCC Guidelines, which results in a TERT report

Concurrently, the LULUCF experts conduct the technical analysis of the technical annex on REDD+ according to the guidance in decision 14/CP.19, which results in a technical report on the technical analysis of the technical annex – TATR.

The TER reports provide identified areas for improvement, including recommendations for mandatory provision, encouragements for non-mandatory ones and capacity-building needs for developing countries. The TER reports are publicly available on the UNFCCC website. The TER reports further contribute to the multilateral consideration of the party's progress on respective implementation and achievement of their NDC.

▶ **FMCP summary report:**

Once the TER report becomes publicly available, the FMCP process commences. It is a peer-to-peer exchange where countries present their successes, challenges and lessons learned during the implementation and achievement of their NDCs, by answering questions raised through the online platform and during the working group sessions of the Subsidiary Body for Implementation. It covers gaps and capacity-building needs for preparing their GHG inventory, implementing mitigation actions and adaptation measures, and providing and receiving support for climate actions. The FMCP is a four-month process that also informs the Global Stocktake.

▶ **REDD+ web platform and information hub**

For developing countries that submit technical annexes on REDD+ in their BTRs, data and information on the implementation of REDD+ activities are shared at the [REDD+ Web Platform](#), which is publicly accessible. The platform includes the [Lima REDD+ Information Hub](#), established in decision 9/CP.19, which includes structured data and information on results of REDD+ activities and corresponding results-based payments.

The REDD+ Information Hub contains information on the results of emission reductions from the REDD+ activities reported, which are eligible to receive results-based payments, along with its technical report on the technical analysis. It also provides access to national REDD+ strategy/action plans, information on safeguards for national REDD+ strategy implementation according to the requirements provided in Appendix I to Decision 1/CP.16, assessed forest reference (emission) level, its technical assessment report, and corresponding payment details.

Use of biennial transparency reports

BTRs contribute to a critical mechanism for tracking global progress of NDCs, thus fostering multilateral cooperation and supporting climate policy development at national and international levels. The role of BTRs in informing the Global Stocktake, the GGA, and the FMCP, as well as policy development and capacity building, is essential to ensuring the transparency, accountability and ambition required for long-term climate action.

At the national level

The information contained in BTRs helps countries to enhance their ability to implement effective climate actions, mobilize support and track progress towards their NDCs.

The BTRs provide a robust foundation of evidence for policymakers, offering comprehensive data on national emission and removal trends, mitigation actions and their contributions to the NDCs. This information, together with the TER reports, helps countries refine their climate policies based on accurate and up-to-date data to enhance mitigation and adaptation strategies when possible and feasible. The BTRs help policymakers understand areas where additional internal and external support is needed in terms of finance, technology and capacity building. They also support the design of more targeted and effective climate strategies. These reports assist national governments in aligning their domestic policies with international commitments.

Capacity building is essential for countries to continue improving their abilities to fulfil reporting requirements under ETF, for which a sufficient level of institutional arrangements and technical expertise is necessary.

The BTRs serve as a tool for national policymakers to identify, stratify and prioritize capacity-building needs to overcome barriers to implementing climate actions, particularly in developing regions and vulnerable sectors. Moreover, the TER may identify additional capacity-building needs during the BTR review process, which will be reflected in the TER report.

At the international level

Global stocktake

The Global Stocktake uses BTR data and their technical annexes for REDD+ – in addition to the scientific research and findings by the IPCC, among others, – to review the aggregate emissions trends, finance flows, and climate actions undertaken by countries. According to Article 14 of the Paris Agreement, the outcome of the Global Stocktake informs countries in updating and enhancing their NDCs, their actions and support, as well as in enhancing international cooperation for climate action.

The BTRs and associated TER reports ensure that the data used in the Global Stocktake is transparent and consistent, thus providing a comprehensive picture of how global emissions are evolving and which actions are contributing to the achievement of climate goals.

Since 2023, the Global Stocktake takes place every five years. It relies on transparent data dissemination to determine whether collective efforts are on track to meet the long-term mitigation and adaptation goals of the Paris Agreement. Importantly, the outcome of the first Global Stocktake emphasized enhanced efforts towards halting and reversing deforestation and forest degradation by 2030.

Global goal on adaptation

The BTRs provide an important opportunity for tracking progress towards the GGA targets and indicators. To limit duplication and reporting burden, BTRs allow Parties to cross-reference information previously submitted to the UNFCCC, and the structure of BTRs is particularly well suited for tracking progress towards the GGA.

Facilitative, multilateral consideration of progress

The FMCP provides opportunities for Parties to exchange knowledge and gain experience in climate actions and accelerates collective efforts to meet Paris Agreement goals. Through the FMCP, Parties can share achievements towards their commitments and express issues faced in capacity building to prepare GHG inventories and implement mitigation measures. The FMCP provides understanding for different stakeholders – including civil society – on progress made and challenges encountered.



3. Synergies of global forest resources assessment and biennial transparency report reporting mechanisms



Common metrics

The FRA and BTR reporting contains an extensive set of complementary indicators and metrics that show significant topical overlap, despite variations in terminology and methodological approaches. A systematic identification and strategic harmonization of these shared elements can substantially enhance reporting efficiency while ensuring cross-framework consistency.

The FRA focuses on assessing forest resources, while BTRs concentrate on tracking GHGs and sinks, climate change impacts, and climate action (both mitigation and adaptation) towards NDCs. However, both require similar data, which creates a chance to combine efforts and meet both requirements at the same time.

Table 1 presents a systematic overview of key variables and indicators shared between FRA and BTR reporting. The table highlights their specific applications within each context and the official FAO FRA 2025 terms and definitions.

Table 1 Overview of shared metrics between FRA and BTR

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Forest area and changes	Total land area classified as forest according to the FRA definition, measured in hectares In the context of FRA, the following definition for “forest” is used: Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ; does not include land that is predominantly under agricultural or urban land-use.	Primary metric for changes in the extent of forest resource quantification, as total area and percent of land area	Primary metric for forestland representation in BTR and REDD+ reporting Potentially contributing variable to the adaptation reporting post-COP30, after the finalization of the UAE-Belém work programme on adaptation indicators

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Growing stock	Volume over bark of all living trees with a minimum diameter of 10 cm at breast height (or above buttress if these are higher); Includes the stem from ground level up to a top diameter of 0 cm, excluding branches	Core indicator of forest productivity and commercial value	Variable for biomass carbon stock calculations
Above-ground biomass	All biomass of living vegetation, both woody and herbaceous, above the soil, including stems, stumps, branches, bark, seeds and foliage	Indicator of ecological condition	Source data for above-ground biomass carbon stock calculations
Below-ground biomass	All biomass of live roots; fine roots of less than 2 mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter	Indicator of ecological condition	Source data for below-ground biomass carbon stock calculations
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stems, stumps, branches, bark, seeds and foliage	Critical indicator for the role of forests in carbon sequestration, climate change mitigation and ecosystem health	Central metric for calculating carbon stock changes in the biomass carbon pool
Carbon in below-ground biomass	Carbon in all biomass of live roots; fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter	Critical indicator for the role of forests in carbon sequestration, climate change mitigation and ecosystem health	Central metric for calculating carbon stock changes in the biomass carbon pool

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Carbon in dead wood	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots down to 2 mm, and stumps larger than or equal to 10 cm in diameter	Critical indicator for the role of forests in carbon sequestration, climate change mitigation, and ecosystem health	Central metric for calculating carbon stock changes in the dead organic matter carbon pool
Carbon in litter	Carbon in all non-living biomass with a diameter less than the minimum diameter for dead wood (e.g. 10 cm), lying dead in various states of decomposition above the mineral or organic soil	Critical indicator for the role of forests in carbon sequestration, climate change mitigation and ecosystem health	Central metric for calculating carbon stock changes in the dead organic matter carbon pool
Soil organic carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series	Critical indicator for the role of forests in carbon sequestration, climate change mitigation and ecosystem health	Central metric for calculating carbon stock changes in the soil carbon pool
Designated management objective	The total area managed for a specific objective	Tracks forest area according to primary objectives such as production, conservation or multiple use, to monitor trends in forest management and inform sustainable forest policies	Not a direct BTR reporting category but can inform qualitative descriptions of national circumstances and context for forest-related mitigation measures Used to help define the scope of REDD+ activities related to sustainable management of forests, conservation and enhancement of carbon stocks, underpinning demonstrations of results-based actions

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Forest area within protected areas and forest area with long-term management plans	Forest area within formally established protected areas, independently of the purpose for which the protected areas were established Forest area that has a long-term (10 years or more) documented management plan, aiming at defined management goals, and which is periodically revised	Quantifies forest extent within formally protected areas and tracks the proportion of forests under sustainable, long-term management plans to assess global forest protection and management progress	Informs national GHG inventories for LULUCF by distinguishing managed/protected forestland and supporting transparency of mitigation efforts in BTRs Serves as a metric for REDD+ safeguards and can support reporting on activities related to forest conservation and sustainable management within REDD+ reference levels Potentially contributing variable to the adaptation reporting post-COP30, after the finalization of the UAE-Belém work programme on adaptation indicators
Deforestation	The conversion of forest to other land-use independently, whether human-induced or not	Indicator of forest loss dynamics	Data related to biomass losses due to forestland conversion to other land-use categories, such as cropland, grassland, wetlands, settlements and other land; also reported in the FREL and REDD+ technical annex to obtain results-based payments for this activity
Forest degradation	Not formally defined in FRA 2025 Countries should document definition or description of forest degradation and provide information on how this data is being collected.	Qualitative and quantitative measure of forest degradation	Emissions from forest degradation are increasingly being reported in the FREL and REDD+ annexes to obtain results-based payments for this activity

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Forest restoration	Not formally defined in FRA 2025 Countries should document definition or description of forest restoration and provide information on how this data is being collected.	Reporting on progress towards SDG 15.2.1 (sustainable forest management) and through restoration-related data supporting the UN Decade on Ecosystem Restoration	Potentially included in conversion of other land to forest land in the GHG inventory under the LULUCF sector Forest restoration can be reported as REDD+ activity (under “enhancement of forest carbon stocks”), in FREL/FRLs and REDD+ Potentially contributing variable to the adaptation reporting post-COP30, after the finalization of the UAE-Belém work programme on adaptation indicators
Primary forest	Naturally regenerating forest of native tree species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed	Indicator of forest ecological integrity	Contributing variable for establishing FREL/FRL and forestland stratification
Planted forest	Forest predominantly composed of trees established through planting and/or deliberate seeding	Indicator on the extent of planted forest	Contributing variable for establishing carbon reference levels and forestland stratification
Naturally regenerating forest	Forest predominantly composed of trees established through natural regeneration	Indicator of forest type for ecological assessment	Contributing variable for establishing carbon reference levels and forestland stratification

Variable/ Indicator	FRA definition	FRA application	BTR/GHG inventory application (LULUCF sector), REDD+ reporting
Forest ownership	Generally, refers to the legal right to freely and exclusively use, control, transfer or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations and inheritance.	Indicator for socioeconomic and governance assessment	Contributing to the specificity of national institutional arrangements and to the development and implementation of national strategies or action plans, that shall address land tenure and forest governance issues
Forest disturbances	Disturbance caused by any factor (biotic or abiotic) that adversely affects the vigour and productivity of the forest and which is not a direct result of human activities	Indicator for forest health and vitality	Contributing variable for carbon stock losses Potentially contributing variable to the adaptation reporting post-COP30, after the finalization of the UAE-Belém work programme on adaptation indicators
Forest fire	Forest area affected by fire	Key disturbance indicator affecting forest health	Forest fires are accounted for under the LULUCF sector as a source of GHG emissions Forest fires are drivers of forest degradation and loss, and data on fire extent and impacts inform the quantification of emissions reductions and associated safeguards in REDD+ activities Countries may continue reporting on wildfires as part of climate impact section of the BTRs

National greenhouse gas inventories of land use, land-use change and forestry sector

Forest area data from FRA can provide essential information for land type representation in GHG inventories. These data can help establish the extent of forestland and track conversions between forest and other land uses. In this context, consistency in forestland area between FRA and BTR reporting is vital.

The FRA reporting can directly support tracking forestland conversions in LULUCF GHG inventories by providing data on annual average forest expansion, deforestation and net change of forest area. These variables provide critical information for estimating emissions and removals associated with carbon stock changes due to deforestation, afforestation and forest management.

According to the MPGs, countries are required to use the 2006 IPCC Guidelines for conducting national GHG inventories. The 2006 IPCC Guidelines (Volume 4, Chapter 3) assists countries in available data processing – including forestry-related ones – to reduce possible overlaps and omissions in reporting to the extent possible. As a result, it provides recommendations for data usage.

Following the 2006 IPCC Guidelines, all data should be:

- ▶ **adequate:** capable of representing forestland, conversions of other land use (e.g. cropland or grassland) to forestland, and conversion of forestland to other land-use categories as needed to estimate carbon stock changes and GHG emissions and removals;
- ▶ **consistent:** capable of representing forestland consistently over time without being affected by artificial discontinuities in time series data;
- ▶ **complete:** all land within a country should be included, with increases in some areas balanced by decreases in others, recognizing the biophysical stratification of land if needed (and as can be supported by data) for estimating and reporting emissions and removals of GHGs; and
- ▶ **transparent:** data sources, definitions, methodologies and assumptions should be clearly described.

The 2006 IPCC Guidelines (Volume 4, chapter 3) provides a broad and non-prescriptive definition for forestland. This definition includes all land with woody vegetation consistent with thresholds used to define forestland in the national GHG inventory. It also includes systems with a vegetation structure that currently fall below, but *in situ* could potentially reach, the threshold values used by a country to define the category.



Data collection and integrated data management

Information from national forest monitoring systems is the main source of information for FRA and is essential for BTR GHG inventory reporting. Strengthening these systems enhances the quality and consistency of information provided under both frameworks.

Aligning the timing of data compilation, review and verification processes can enhance the traceability and consistency of reported information. It reduces discrepancies between datasets and supports synergies for institutional coordination, focal points collaboration and joint work on datasets.

The separation of national databases and information systems for various reporting processes leads to inefficiencies and potential inconsistencies in the data submitted, despite being of the same indicators. Integrated national data management could support streamlined international reporting by facilitating data organization, aggregation, report submission, review, validation, analysis and dissemination.

This modus operandi for national integrated data management could include developing a single data platform that serves multiple reporting needs, or improving the integrated operation of several databases that are accessible to all involved directories and collaborators.

Focal points and institutional coordination

National focal points for UNFCCC, REDD+, as well as adaptation monitoring and evaluation systems are key parts of the reporting networks for the FRA and BTR processes. These specialists possess expert knowledge and valuable institutional memory, essential for consistent reporting and efficient cooperation with the secretariats of both processes.

Currently, some countries maintain separate institutional responsibilities for these reporting processes. In this approach, forestry departments typically manage FRA submissions, while climate change or environmental ministries oversee BTR submissions. National focal points of both processes sometimes operate separately with limited awareness of their paralleled forest-related reporting.

Enhancing synergies among focal points internally and externally, as well as cooperation between the two networks, requires establishing communication channels, regular joint meetings and consistent coordination. This could also involve joint workshops. Combined capacity-development programmes for focal points from both reporting processes could support a common understanding of methodologies and reporting requirements. Furthermore, expanded institutional coordination enhances consistency in data reporting, facilitates compliance with international agreements, strengthens national capacities to meet commitments made in NDCs, and avoids duplication of work.

The cross-appointment of staff to both reporting processes could build institutional bridges and knowledge transfer through joint technical working groups.



4. Recommendations

Technical recommendations

To enhance the coordination and potential alignment of data used for FRA and BTR processes, countries are encouraged to pursue the following:

- ▶ ensure ongoing alignment and information exchange across national FRA and BTR teams and focal points (including REDD+) by, for instance:
 - establishing joint working groups or coordinate regular meetings
 - establishing communication channels
 - considering appointing common focal points to both processes
- ▶ enhance consistency and efficiency through alignment and integration of national processes, including:
 - common data collection approaches;
 - using integrated tools used for processing, estimation and analysis; and
 - establishing common internal quality assurance or quality control procedures or frameworks for the peer-review of both reports, in line with relevant guidelines and standards (2006 IPCC Guidelines, upcoming updated IPCC Adaptation guidelines – expected for 2029 – and relevant International Organization for Standardization standards)
- ▶ allow for seamless data sharing across teams and institutions to minimize duplication of efforts by, for instance:
 - sharing data platforms
 - creating interoperable digital platforms and data management systems
 - granting access to process specific platforms

Capacity development

- ▶ Countries may develop their capacities for implementing the technical encouragements' mentioned above based on internal conditions and needs, the level of FRA and BTR data alignment, and the complexity of recommendations from the TERT reports to the BTR, and technical analyses of the technical annex to the REDD+ technical annex of the BTR.
- ▶ Countries may consider joint training workshops and the development of e-learning modules tailored to the integrated reporting process.

Contributions to the global stocktake process and global goal on adaptation

- ▶ The implementation of technical recommendations (encouragements) for the alignment of FRA and BTR processes will facilitate the subsequent rounds of the Global Stocktake process through internally and externally consistent forest-related information reported by countries. It will also help track progress towards the GGA and highlight the key role of forests in enhancing adaptive capacity, building resilience and reducing vulnerability to climate change.
 - This will contribute to the transparency of countries' efforts towards their NDCs, particularly where forests play a vital role. It will also support future climate-related policy reconsiderations and potential adjustments required by the global progress made towards Paris Agreement long-term targets, concluded by each round of the Global Stocktake process and the future progress on the GGA.



Annexes



Annex I: Cross-reporting matrix of forest resources assessment and biennial transparency report processes

The matrix maps where key common variables and metrics appear within the structural organization of both reporting frameworks to facilitate targeted coordination efforts.

Variable/Metric	FRA Location	BTR Location (incl. CRT tables)
Forest area 1000 hectares (1000 ha)	Section 1: Forest extent, characteristics and changes Table 1a: Extent of forest and other wooded land	Chapter 6: LULUCF. Land representation. Forest land (CRT tables 4.1 and 4.A)
Forest expansion/reduction 1000 hectares per year (1000 ha/year)	Section 1: Forest extent, characteristics and changes Table 1d: Annual forest expansion, deforestation and net change	NID, Chapter 6: LULUCF. Land conversions to/from forest land (CRT tables 4.1, 4.A, 4.B, 4.C, 4.D, 4.E, 4.F)
Primary forest 1000 hectares (1000 ha)	Section 1: Forest extent, characteristics and changes Table 1b: Forest characteristics	NID, Chapter 6: LULUCF. Forest land stratification approaches (CRT tables 4.1 and 4.A)
Forest ownership 1000 hectares (1000 ha)	Section 4: Forest ownership and management rights Table 4a: Forest ownership	NID, Chapter 6: LULUCF. Description of forest ownership and management right
Growing stock Million cubic meters (million m³)	Section 2: Forest growing stock, biomass and carbon Table 2a: Growing stock	NID, Chapter 6: LULUCF. Initial calculation variable
Biomass stock Million tonnes (million t)	Section 2: Forest growing stock, biomass and carbon Table 2c: Forest biomass	NID, Chapter 6: LULUCF. Above/below-ground forest biomass carbon pools
Carbon stock Million tonnes (million t)	Section 2: Forest growing stock, biomass and carbon Table 2d: Forest carbon	NID, Chapter 6: LULUCF. Forest land. Biomass carbon pool (CRT Table 4.A)

Variable/Metric	FRA Location	BTR Location (incl. CRT tables)
Forest disturbances 1000 hectares (1000 ha)	Section 5: Forest disturbances Table 5a: Forest damage Table 5b: Area affected by fire	NID, Chapter 6: LULUCF. Natural disturbances on forest land. Emissions from natural disturbances (CRT Table 4(IV))
Wood removals	NOT REPORTED IN FRA	NID, Chapter 6: LULUCF. Forest biomass losses and/or harvested wood products
Existence of policy and legal framework Boolean (yes/no)	Section 6: Forest policy and legislation Table 6a: Policies, legislation and national platform for stakeholder participation in forest policy	BTR, Chapter II: Mitigation policies and measures in LULUCF sector
Area of forest under management plan 1000 hectares (1000 ha)	Section 3: Forest designation and management Table 3b: Forest area within protected areas and forest area with long-term management plans	NID, Chapter 6: LULUCF. Forest land
Forest degradation 1000 hectares (1000 ha)	Section 5: Forest disturbances Table 5c: Degraded forest	NID. Chapter 6: LULUCF. Forest land
Forest restoration 1000 hectares (1000 ha)	Section 3: Forest designation and management Table 3c: Forest restoration	NID, Chapter 6: LULUCF. Forest land

Annex II: Examples of forest-related financial, technology transfer and capacity-building support reported by countries in their first biennial transparency reports



► **Financial support was identified for:**

- afforestation, where projects aim to mitigate the impacts of deforestation;
- restoration and reforestation of forests on degraded lands;
- developing national forest ecosystem management plans;
- strengthening the management of invasive alien species;
- enhancing forest management systems by reinforcing planning and execution frameworks;
- creating a cohesive network of well-managed protected areas;
- preventing forest loss; and
- increasing the capacity of rescuers to prevent and control fire accidents.

► **Technology development and transfer were identified for:**

- forest restoration based on natural processes, including early detection systems for forest fires;
- software solutions designed to assist in forest maintenance and restoration modelling;
- the efficient use of biomass for heating systems;
- developing and piloting a methodology for forest statistical inventories;
- modern tools and equipment for forest inventories; and
- creating forest information and monitoring systems.

► **Capacity-building support was identified for:**

- reducing forest fires;
- formulating a comprehensive forest management strategy;
- enhancing forest management systems by reinforcing the planning and execution framework;
- mitigating the strain on forests by encouraging the adoption of alternative resources and energy-efficient technologies; and
- responsibly utilizing natural resources while considering biodiversity objectives alongside the promotion of environmental consciousness within the community.



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ISBN 978-92-5-140301-3



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CD7612EN/1/11.25